

**FSEM Proposal AY 2020-2021**

**John A. Latham, Asst. Professor**

**Science Policy: From National Parks to Contemporary Issues**

**Fri: 1200-350 pm**

**Destination Plan:** Kenosha Pass, hiking

**FSEM Course Description (200 words)**

National Parks are an American innovation pioneered through the advocacy of visionaries such as John Muir and Theodore Roosevelt and secured through the implementation of Science Policies or public policy that affects the conduct and funding of science, set forth by the United States Government. This successful intervention of advocacy and Science Policy resulted in the National Park System, which now includes 400 protected areas across the United States and serves as a global blueprint for environmental and historical conservationism and stewardship. But what is Science Policy and how did it influence the creation and expansion of the National Parks in the United States? How do Science Policies shape the direction of Science and Technology research in America? Who has the power to shape the direction of research focus in America?

This FSEM course explores the development and implementation of Science Policy by using the National Parks as a model and by investigating contemporary Science Policy issues such as space exploration, human gene editing, and much more. Through in-class discussions, field trips, and independent research, students will develop their reading, writing, and communication skills. This course is an opportunity for students to become more knowledgeable about Science Policy and learn how decisions in Science Policy can affect their lives.

**FSEM Course Proposal (2-page max)**

**Introduction**

Science policy was written into the constitution of the United States in 1787 when Congress was given power

To promote the Progress of Sciences and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries.

This copyright clause effectively shaped the direction of research and invention in the United States and became the national focus during, and especially following, World War II (WWII). Under Vannevar Bush, President Franklin D. Roosevelt’s head of the US Office of Scientific Research Development during WWII, the direction of government funded research tackled three pillars; 1) war against disease, 2) new products, new industries, and new jobs, and 3) defense against aggression. Bush’s strategy, to achieve scientific progress through basic scientific research, became the prototype to the research and development machine that currently dominates the scientific policy landscape today.

Although the modern era is rife with the examples of Science Policy relating to Science, Technology, Engineering, and Mathematics (STEM), the theory behind STEM policy in the early days of the United States was based on “science for policy and technology for policy.” Particularly important was scientific and technological advances in public health, geography, and agriculture. As the nation grew leading up to the Civil War, scientific and technical knowledge became an increasingly important issue. At the time, research was primarily supported through philanthropy however, during the Civil War, the federal government began to actively engage in *policy for science*. Specifically, the federal government established a land-grant system to study agriculture, established the Weather Bureau, and supported surveys of the Western United States. Around the same time, a related movement was beginning to grip the nation, one that focused on preservation and conservation. This new movement, based in Science Policy, led to the creation of the National Parks System.

The National Park System is a uniquely American innovation that came about by the advocacy of pioneers and visionaries such as John Muir and Theodore Roosevelt. Starting from Yellowstone National Park, the National Park System now consists of over 400 protected areas across the United States and serves as a global blueprint for environmental and historical conservationism and stewardship. Although considered the standard for environmental and historical stewardship, the history of the National Parks System has been strife with contention. However, through the passionate advocacy by grassroots and concerned organizations, science policies have been implemented that ensures the protection of public land for generations to come.

**Intellectual Community**

Using the National Park System as a model, this course aims to actively engage students in Science Policy. This engagement will be achieved by providing a safe environment for students to discuss their views, focusing on group/teamwork/discussion assignments rather than didactic approaches, empowering students to participate in Civics, and providing opportunities for students to connect how Science Policy decisions based in Washington affect their daily lives.

**Academic Expectations**

This course will expose students to the academic rigor of college-level courses. With the understanding that all college majors require a common core skillset, this course will focus on developing reading, writing, research, and communication skills. These skills will be practiced through discussions, individual research, and team presentations. Students will be expected to participate in daily discussions, complete assigned readings, attended and reflect on field trips, complete several writing assignments including a Policy Brief to their Representative, and research and present on a Science Policy topic.

**Active Learning Environment**

As mentioned above, this course will have several rigorous assignments/expectations that are designed to facilitate learning through active participation in the class. To begin with, students are expected to participate in class discussions that will be facilitated by the instructor. During these discussions students are expected to follow the “norms” of the class laid out in this syllabus and that will be discussed during the first day. Participation points will be derived from students participating in discussion and attendance. Reading journals will also be kept to ensure that students are engaged in critical reading of their assignments. Moreover, students will be required to attend field trips to Kenosha, Black Mountain, Chatfield, and Denver Museum on Natural Sciences and write reflections on their visit. Students will be encouraged to use the Writing Center for these writing assignments, and for the short essay and Policy Brief that will be required during the course. Lastly, students will be expected to research a Policy topic and, in teams, present their Policy Brief to the class.

**Academic Advising**

Starting college is not just an academic transition but also a life transition. To facilitate the academic transition, I will serve as an Academic Advisor by meeting with students one-on-one during each quarter to discuss their academic plan. More importantly, I will serve the students by coaching them through the life transition. This will be achieved through relating to them my experiences in college, interacting with them outside of the classroom by inviting them to coffee, ensuring that they feel welcomed to drop by my office anytime, and by hosting quarterly get-togethers.



**American Science Policy and the National Parks**

**First Year Seminar (FSEM)**

**Tentative Course Syllabus**

**Fall 2020**

Asst. Prof. John Latham

*Email:* john.latham@du.edu

*Phone:* 1-2533

*Meeting time and location:* Friday – 1200-350 pm

*Office:*SGM 251 - TBD

**FSEM Course Description:**

National Parks are an American innovation pioneered through the advocacy of visionaries such as John Muir and Theodore Roosevelt and secured through the implementation of Science Policies, or public policy that affects the conduct and funding of science, set forth by the United States Government. This successful intervention of advocacy and Science Policy resulted in the National Park System, which now includes 400 protected areas across the United States and serves as a global blueprint for environmental and historical conservationism and stewardship. But what is Science Policy and how did it influence the creation and expansion of the National Parks in the United States? How do Science Policies shape the direction of Science and Technology research in America? Who has the power to shape the direction of research focus in America?

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**FSEM Course Goal:**

Students will emerge from the course with a strong grasp of the fundamentals of Science Policy and how Science Policy affects their daily lives.

**FSEM Learning Outcomes:**

1. Students who successfully complete the FSEM will be able to engage in critical inquiry in the examination of concepts, texts, or artifacts and effectively communicate the results of such inquiry
2. Students will demonstrate their capacity to contribute to an intellectual community by implementing skills in critical thinking, critical reading, writing, and actively contributing to discussions in a rigorous academic environment.

1. Students will practice their developed skills and newly acquired knowledge in an active learning environment, culminating in a presentation an active engagement with their political representatives concerning Science Policy.

**Required Reading:**

Chapters in:

DU’s One Book selection

Beissinger, S.R., Ackerly, D.D., Doremus, H., and Machlis, G.E. (2017) Science, Conservation, and National Parks. Chicago, IL. The University of Chicago Press. (Purchase from the bookstore or from online)

Pielke, R.A. Jr. (2007) The Honest Broker: Making Sense of Science in Policy and Politics. Cambridge, UK. Cambridge University Press. (Purchase from the bookstore or from online)

Supplemental readings will come from online sources. Examples are:

Sarewitz, D. Does Science Policy Matter? *Issues* *in Science and Technology*. (2007) **23** no. 4.

Stine, D.D. Science and Technology Policymaking: A Primer. *CRS Report for Congress*. (2009) RL34454

Bush, V. Science: The endless frontier. A Report to the President on a Program for Postwar Scientific Research. (1945) Reissued by the NSF 1955.

**Required Videos:**

Duncan, D., Burns, K., Coyote, P., Stetson, L., Arkin, A., Bosco, P., Conway, K., ... National Parks Film Project, LLC. (Firm). (2009). *The national parks: America's best idea*. Arlington, Va.: PBS Home Video.

Required videos will be made available through DU Course Media, Canvas, and links to YouTube.

**Course Expectations:**

**Participation:** Students are expected to read the assigned material prior to class meetings and be prepared to answer questions in class based on the readings and discussion questions. All students are expected to contribute to each discussion following the norms laid out below. Students are expected to contribute **equally** to group activities during class time – this will be peer evaluated. Remember, to earn participation points you must be in class. Any non-DU affiliated or non-health related absence will not be considered as an excusal.

**Reading Journal:** To assist you in fulfilling the reading assignments, during the quarter, I would like you to produce five (5) reading response memos of roughly a page (single spaced) each. These do not need to be fancy! They could even be a simple list of insights or questions derived from the readings. They should be opportunities to refine questions and insights from the readings. You can also use these to explore ideas relevant to your policy analysis exercise (see Policy Brief). They should be submitted to me at least two hours before the start of class on the week the readings will be discussed; I will draw on them to frame discussion and steer the conversation toward areas of use to you.

**Essay:** The short essay will focus on the four styles of science advocacy discussed in The Honest Broker. This essay is designed to challenge students to research a topic using sources from outside of the classroom and relate the information discussed by Pielke to the topic. Students are encouraged to follow the rubric found on Canvas. In addition, students are encouraged to use all available resources found in the Writing Center. Documents will be submitted through Canvas.

**Filed Trip Reflections:** Although field trips are an exciting time to get off campus, they are designed to provide students with opportunities to “see” how Science Policy has shaped the Science and Technology landscape around us. To encourage this thought process, short reflections will be required for each outing. These reflections should follow the rubric provided in Canvas and will be submitted through Canvas.

**Team Project:** Every student must work in a four-person policy panel. One student will be elected leader and will be responsible for all final documents and presentations, however your panel must be a consensus of all panel members. Each team will be responsible for a Policy Brief aimed at informing your Representative of a Science Policy on your team project. The Policy Brief should follow the Rubric found on Canvas Each policy. The committee must debate and consider at least three Science Policy questions and submit a draft charge letter (see Rubric) which I will review, revise, and return for your deliberations as a committee. Based on your charge letter, you must prepare an interim report (see Rubric) and a four-page slide presentation of your interim policy recommendation. All documents will be uploaded to Canvas.

 **Grade Distribution**

|  |  |
| --- | --- |
| ***Assignment*** | ***Points*** |
| Participation  | 100 |
| Reading Journal | 50 |
| Short Essay (1 ea @ 1000 words) | 50 |
| Field trip reflections (4 @ 500 words)  | 100 |
| Team Project (draft letter – 20 pts, letter – 30 pts, presentation 50 pts)  | 100 |
| **TOTAL** | **400** |

**Letter Grades.** At the end of the term, letter grades will be assigned based on your total score for the class. See below for the distribution of letter grades.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **A-** | **B+** | **B** | **B-** | **C+** | **C** | **C-** | **D+** | **D** | **D-** | **F** |
| 94-100 | 90-93 | 87-89 | 84-86 | 80-83 | 77-79 | 74-76 | 70-73 | 67-69 | 64-66 | 60-63 | 59-0 |

**Course Policies**

**Technology in the classroom:** Students are welcome to take notes on laptops or tablets during class so long as the devices do not distract other students. If distraction complaints by students are issued during the quarter, students will be asked to keep their devices powered off.

Cellphone courtesy…please use it. If you are expecting an important phone call, keep the ringer on silent and answer the call outside of the classroom.

**Norms:** DU, and therefore this class, is represented by students with diverse backgrounds including religion, ethnicity, race, beliefs, political views, sexual orientation, and much more. Therefore, **it is of the** **upmost importance to be respectful of each other in every way possible, always**. The nature of this class will highlight differences in students’ beliefs. Disrespect shown towards your peers, as judged by the instructor, will not be tolerated and any student who participates in this activity will be dismissed from the class for the day with loss of participation points.

To avoid precarious situations, we will follow the class norms laid out below and discussed at the beginning of the course.

* Try to keep the class about science.
* Listen actively and attentively.
* Ask for clarification if you are confused.
* Do not interrupt one another.
* Challenge one another but do so respectfully.
* Critique ideas, not people.
* Do not offer opinions without supporting evidence.
* Avoid put-downs (even humorous ones).
* Take responsibility for the quality of the discussion.
* Build on one another’s comments; work toward shared understanding.
* Always have your book/readings in front of you.
* Do not monopolize discussion.
* Speak from your own experience, without generalizing.
* If you are offended by anything said during discussion, acknowledge it immediately.
* Consider anything that is said in class strictly confidential.
* Avoid logical fallacies.

**Lecture and Testing Accommodations:** I will make every effort to accommodate students diagnosed with a learning disability. I will do this in complete confidence. I do, however, request that any student requiring these accommodations inform me the first week of class. For further information, please see the University Disability Services’ website at <http://www.du.edu/disability/dsp/index.html>. The Disability Services Programs (DSP) is located on the 4th floor of Ruffato Hall, 1999 E. Evans Ave. DSP can be contacted by calling 303.871.2372 or by emailing dsp@du.edu.

**Religious Accommodations:** It is University policy to grant students excused absences from class or other organized activities for the observance of religious holy days, unless the accommodation would create an undue hardship.  I will do my best to accommodate your requests if you make arrangements with me *in advance* of your absence. Please examine the course syllabus, including the tentative schedule, for any potential conflicts with holy days and notify me prior to the end of the second week of classes of conflicts that may require your absence from class and/or prevent you from completing an assignment. More information can be found at: <http://www.du.edu/studentlife/religiouslife/about-us/policy.html>.

**Academic Dishonesty:** While I advocate collaborative learning and teamwork, I also firmly believe that everyone should maintain the highest ethical standards in all of life’s endeavors. As such, I support and will strictly enforce the Honor Code of the University of Denver. For your reference, the link to the Honor Code Student Conduct Policy and Procedures is: <http://www.du.edu/studentlife/studentconduct/>.

**Academic Advising:** Instructors of First-Year Seminars also serve as students’ academic advisors and faculty mentors for the entire first year. Accordingly, I will meet with each of you individually during each quarter (of your first year) for advising and registration help. More specifically, I will meet with each of you during Advising Week of the (2017) fall quarter to help you register for your (2018) winter classes. I will also meet with you during Advising Weeks of the winter and spring quarters (of 2018) to help you register for subsequent academic terms.

**Course Timeline**

**Sept 18: Course overview: What are advocacy, policy, and conservation?**

* **Reading:**
	+ “[What is Science Policy?](http://www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=10188)” – Gregory Hunt
	+ Chapters 1-3 – “The Honest Broker…”
	+ Science and Technology Policymaking: A Primer.” – Stine
* Examples/Practice Reading Journal

**Sept 25: The art of making Science Policy.**

* **Reading:**
	+ “Does Science Policy Matter?” – Sarewitz
	+ “[How Scientists Can Influence Science Policy](http://www.sciencemag.org/careers/2014/02/how-scientists-can-influence-policy)” – Pain
	+ Chapters 4-5 – “The Honest Broker…”

\*First Field Trip Reflection is Due – 26 Sept 2020

**Oct 02: How has science policy shaped STEM research in the United States?**

* **Reading:**
	+ Chapters 6 - “The Honest Broker…”
	+ [Policy-Making Needs Science.](http://science.sciencemag.org/content/sci/330/6009/1287.full.pdf)” – Alberts

**Oct 09: Science Policy in your lives, Science Policy in the news.**

* **Field Trip to DMNS**
* **Reading:**
	+ Intro - Science, Conservation, and National Parks. – Bessinger *et al*.
	+ Current news articles at the time of the class.

\*Short Essay is Due - 10 Oct 2020

**Oct 16: Case study of science policy, advocacy, and conservation: The National Parks part 1&2**

* **Reading:**
	+ Sections 1&2 - Science, Conservation, and National Parks. – Bessinger *et al*.
	+ “[National Park Service Management Policies for the National Park System](https://pdfs.semanticscholar.org/10f7/f4d739f97dc02fc1541f00f8e0cf8b386092.pdf).” – Dennis

**Oct 23: Case study of science policy, advocacy, and conservation: The National Parks part 3&4**

* **Reading:**
	+ Sections 3&4 - Science, Conservation, and National Parks. – Bessinger *et al*.
	+ “[Corporate Sponsors at Yosemite?](https://www.scientificamerican.com/article/corporate-sponsors-at-yosemite-the-case-against-privatizing-national-parks/)” – Freemuth & Lowry

\***Field Trip to Chatfield**

\*\*Field Trip Reflection 3 Due – 24 Oct 2020

**Oct 30: Contemporary Science Policy Issues (Biomedical Research) & Breakout Session**

* **Reading:**
	+ Each student is required to find two (2) articles on the internet pertaining to Biomedical Research.
* Students will begin working on Team Project.

\*Field Trip Reflection 4 Due – 31 Oct 2020

**Nov 06: Contemporary Science Policy Issues (Space)**

* **Reading:**
	+ Each student is required to find two (2) articles on the internet pertaining to Space Exploration/Mining.

\* Draft Charge Letter is Due – 01 Nov 2019

**Nov 13: Contemporary Science Policy Issues & Breakout Session**

* **Reading:**
	+ Each student is required to find two (2) articles on the internet pertaining to Environmental Policies.
* Students will finish working on Team Project.

\*Final Charge Letter is Due - 08 Nov 2018

**Nov 20: Student Presentations**

* Presentations of Team Project
* Close of course.